WHAT IS CLAIMED IS:

1. In a data processing system, a method of asset trading comprising the steps of:

entering a plurality of bundled trades, each of said plurality of bundled trades comprising:

a plurality of assets to be traded;

a bundle size value;

a set of proportions of each asset of plurality of assets to be traded in units of said bundle size value; and

one or more portfolio constraints, each of said one or more portfolio constraints including:

a set of portfolio weights; and

a portfolio limit, and wherein each said portfolio constraint is associated with a set of bundled trades and a market participant corresponding to said set of bundled trades; and

matching trades among said plurality of bundled trades.

2. The method of claim 1 wherein said step of matching trades further comprises the step of allocating an amount of each bundle to be traded among said plurality of bundles.

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3. The method of claim 2 wherein said step of matching trades to be traded further comprises the steps of:

selecting a set of numerical values, wherein said set of numerical values has a same number of members as a number of said plurality of entered bundled trades, said set of numerical values forming a set of allocation values; and

multiplying each proportion of asset to be traded by a one of each numerical value of said set of numerical values, said step of multiplying being performed for each bundled trade, thereby forming a set of weighted proportions of assets to be traded, said set having a number of weighted proportions equal to a number of said assets to be traded.

3 ~~4~~. The method of claim 2 ~~3~~ wherein said step of matching trades further comprises a step of forming a set of transaction allocations, said step of forming a set of transaction allocations further comprising the steps of:

for each portfolio constraint associated with a particular market participant, forming an allocation limit, said step of forming an allocation limit associated with said particular market participant comprising the steps of:

multiplying each said portfolio weight by said allocation value corresponding to said associated trade bundle;

summing each product formed by said multiplying step; and

dividing said portfolio limit by a sum formed by said summing step;

selecting a smallest allocation limit from a set of allocation limits having members including allocation limits corresponding to each market participant in a matched trade;

for each bundle having a nonzero allocation value, dividing each bundle size by said nonzero allocation value, thereby forming a set of allocation ratios;

finding a smallest allocation ratio of said set of allocation ratios;

selecting a smaller value of said smallest allocation ratio and said smallest allocation limit, thereby forming an allocation factor; and

multiplying each allocation value of said set of allocation values by said allocation factor, thereby forming a transaction allocation corresponding to each bundled trade of said plurality of bundled trades.

~~5~~ 4. The method of claim ~~4~~ 3 further comprising the steps of:

for each said bundled trade, reducing said bundle size value by a corresponding transaction allocation; and

for each portfolio limit associated with said matched trade, reducing said each portfolio limit by a sum formed by summing a set of products of corresponding portfolio weights multiplied by transaction volumes, said transaction volumes corresponding to bundles associated with said each portfolio limit associated with said matched trade.

5 ~~6~~. The method of claim 4 ~~5~~ further comprising the step of negating each of said weighted proportions of said set of weighted proportions thereby forming a set of market surpluses, each market surplus of said set of market surpluses being a market surplus corresponding to each of said assets to be traded.

6 ~~7~~. The method of claim 5 ~~6~~ further comprising the step of redistributing each market surplus of said set of market surpluses.

7 ~~8~~. The method of claim 6 ~~7~~ wherein the step of redistributing each market surplus of said set of market surpluses further comprises the steps of:

selecting a first set of redistribution values, said first set of redistribution values including a plurality of redistribution values, wherein each value corresponds with an asset to be traded, a number of said values being equal to a number of assets to be traded;

selecting a plurality of second sets of redistribution values, said plurality of second sets having a number of sets equal to a number of entered bundled trades, and wherein each value in each second set corresponds with an asset to be traded, a number of said values being equal to a number of assets to be traded, and wherein a sum of all redistribution values, from said first set and from said plurality of second sets, corresponding with each asset has a value of one;

multiplying each redistribution value in said first set by each market surplus of its corresponding asset, thereby forming a first set of surplus redistribution values;

multiplying each redistribution value in each second set by each market surplus of its corresponding asset, thereby forming a plurality of second sets of surplus redistribution values each said redistribution value corresponding to an asset to be traded, and each set of said plurality of second sets of surplus redistribution values corresponding with an asset bundle;

multiplying each surplus redistribution value in said first set of surplus redistribution values by said allocation factor, thereby forming a set of first transaction redistributions, said first transaction redistributions being retained by a market maker;

multiplying each surplus redistribution value in each set of said plurality of second sets of redistribution values by said allocation factor, thereby forming a plurality of sets of second transaction redistributions, each of said plurality of sets second transaction redistributions corresponding with an entered bundled trade; and

adding each second surplus redistribution value to its corresponding transaction allocation in its corresponding asset bundle.

8 ~~9~~. The method of claim 7 ~~8~~ wherein each proportion of said set of proportions of each asset to be traded includes an algebraic sign, a first algebraic sign

signifying an acquisition offer and a second algebraic sign signifying a disposition offer, said second algebraic sign being opposite said first algebraic sign.

9 ~~10~~. The method of claim 8 ~~9~~ wherein the step of allocating an amount of each bundle to be traded includes determining that each weighted proportion of said set of weighted proportions has a value having an algebraic sign not equal to said first algebraic sign.

10 ~~11~~. The method of claim 8 ~~9~~ wherein said step of allocating an amount of each bundle to be traded includes an optimization step.

11 ~~12~~. The method of claim 10 ~~11~~ wherein said optimization step further comprises the step of solving a linear programming problem, wherein an objective function,

To590 $\sum_{i=1}^{m} c_i \mu_i$, is extremized subject to a set of constraints, wherein m is a number of assets to be traded, is said market surplus, corresponding to asset number "i",

To591 said market surplus being, $-\sum_{j=1}^{n} z_{ij} x_j \quad \forall \quad i \in \{1,\ldots,m\}$, wherein said z_{ij} are said set of proportions of each asset to be traded, a number "j" corresponding to bundle trade number of said plurality of bundle trades, said z_{ij} corresponding to acquisition

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offers having a first algebraic sign, σ_1, and disposition offers having a second algebraic sign, σ_2, opposite said first algebraic sign, $\sigma_2 = -\sigma_1$, said set of constraints comprising:

$$sgn\{\mu_i\} \neq \sigma_2, \quad \forall \quad i \in \{1,\ldots,m\}, \text{ and}$$
$$0 \leq x_j \leq u_j, \quad \forall \quad j \in \{1,\ldots,n\}$$

wherein said *sgn* function extracts an algebraic sign of its argument and returns zero if its argument is zero, and n is a number of entered bundled trades in a data processing system using said method of asset trading, and wherein said x are given by a solution of said linear programming problem, each said x_j being an allocation value corresponding to bundle trade number "j", said u_j being a bundle size corresponding to bundle trade number "j", and wherein said c_i are preselected constants.

12 ~~13~~. The method of claim 10 ~~11~~ wherein said optimization step further comprises the step of solving a linear programming problem, wherein an objective function,

To600 $\sum_{i=1}^{m} c_i \, \mu_i$, is extremized subject to a set of constraints, wherein m is a number of assets to be traded, ${}_i$ is said market surplus, corresponding to asset number "i",

To601 said market surplus being, $-\sum_{j=1}^{n} z_{ij} x_j \quad \forall \quad i \in \{1,\ldots,m\}$, wherein said z_{ij} are said

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set of proportions of each asset to be traded, a number "j" corresponding to bundle trade number of said plurality of bundle trades, said z_{ij} corresponding to acquisition offers having a first algebraic sign, σ_1, and disposition offers having a second algebraic sign, σ_2, opposite said first algebraic sign, $\sigma_2 = -\sigma_1$, said set of constraints comprising:

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$$sgn\{\mu_i\} \neq \sigma_2, \quad \forall \quad i \in \{1,\ldots,m\},$$
$$\sum_{j=1}^{n} x_j \leq 1, \text{ and}$$
$$x_j \geq 0, \quad \forall \; j \in \{1,\ldots,n\},$$

wherein said *sgn* function extracts an algebraic sign of its argument and returns zero if its argument is zero, and n is a number of entered bundled trades in a data processing system using said method of asset trading, and wherein said x_j are given by a solution of said linear programming problem, each said x_j being an allocation value corresponding to bundle trade number "j", said u_j being a bundle size corresponding to bundle trade number "j", and wherein said c_i are preselected constants.

14. The method of claim 1 wherein said step of entering bundled trades includes entering bundled trades using distributed processing over a network.

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15. The method of claim 1 wherein the step of matching bundled trades further comprises the step of reporting matched trades using distributed processing over a network.

16. The method of claim 1 wherein the step of entering bundled trades includes executing an asynchronous thread for entering bundled trades.

17. The method of claim 1 wherein the step of matching bundled trades includes executing an asynchronous thread for matching bundled trades.

17 ~~18~~. The method of claim 2 ~~3~~ wherein said step of matching trades further comprises a step of forming a set of transaction allocations, said step of forming a set of transaction allocations further comprising the steps of:

for each bundle having a nonzero allocation value, dividing each bundle size by said nonzero allocation value, thereby forming a set of allocation ratios;

finding a smallest allocation ratio of said set of allocation ratios; and

multiplying each allocation value of said set of allocation values by said smallest allocation ratio, thereby forming a transaction allocation corresponding to each bundled trade of said plurality of bundled trades.

18 ~~19~~. The method of claim 17 ~~18~~ further comprising the step of negating each of said weighted proportions of said set of weighted proportions thereby forming a set

of market surpluses, each market surplus of said set of market surpluses being a market surplus corresponding to each of said assets to be traded.

19 ~~20~~. The method of claim 18 ~~19~~ further comprising the step of redistributing each market surplus of said set of market surpluses.

19 ~~21~~. The method of claim 19 ~~20~~ wherein the step of redistributing each market surplus of said set of market surpluses further comprises the steps of:

selecting a first set of redistribution values, said first set of redistribution values including a plurality of redistribution values, wherein each value corresponds with an asset to be traded, a number of said values being equal to a number of assets to be traded;

selecting a plurality of second sets of redistribution values, said plurality of second sets having a number of sets equal to a number of entered bundled trades, and wherein each value in each second set corresponds with an asset to be traded, a number of said values being equal to a number of assets to be traded, and wherein a sum of all redistribution values, from said first set and from said plurality of second sets, corresponding with each asset has a value of one;

multiplying each redistribution value in said first set by each market surplus of its corresponding asset, thereby forming a first set of surplus redistribution values;

multiplying each redistribution value in each second set by each market surplus of its corresponding asset, thereby forming a plurality of second sets of surplus redistribution values each said redistribution value corresponding to an asset to be traded, and each set of said plurality of second sets of surplus redistribution values corresponding with an asset bundle;

multiplying each surplus redistribution value in said first set of surplus redistribution values by said smallest allocation ratio, thereby forming a set of first transaction redistributions, said first transaction redistributions being retained by a market maker;

multiplying each surplus redistribution value in each set of said plurality of second sets of redistribution values by said smallest allocation ratio, thereby forming a plurality of sets of second transaction redistributions, each of said plurality of sets second transaction redistributions corresponding with an entered bundled trade; and

adding each second surplus redistribution value to its corresponding transaction allocation in its corresponding asset bundle.

21 ~~22~~. The method of claim 19 ~~20~~ wherein said step of allocating an amount of each bundle to be traded includes an optimization step.

22 ~~23~~. The method of claim 21 ~~22~~ wherein said optimization step further comprises the step of solving a linear programming problem, wherein an objective function, $\sum_{i=1}^{m} c_i \, \mu_i$, is extremized subject to a set of constraints, wherein m is a number of assets to be traded, is said market surplus, corresponding to asset number "i" , said market surplus being, $-\sum_{j=1}^{n} z_{ij}x_j \quad \forall \quad i \in \{1,...,m\}$,f wherein said z_{ij} are said set of proportions of each asset to be traded, a number "j" corresponding to bundle trade number of said plurality of bundle trades, said z_{ij} corresponding to acquisition offers having a first algebraic sign, σ_1, and disposition offers having a second algebraic sign, σ_2, opposite said first algebraic sign, $\sigma_2 = - \sigma_1$, said set of constraints comprising:

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$$sgn\{\mu_i\} \neq \sigma_2, \quad \forall \quad i \in \{1,...,m\},$$
$$0 \leq x_j \leq u_j, \quad \forall \quad j \in \{1,...,n\} \text{ and}$$
$$\sum_{j \in T_k} a_{kj}\, x_j \leq b_k, \ \forall \ k \in \{1,...,p\},$$

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wherein said *sgn* function extracts an algebraic sign of its argument and returns zero if its argument is zero, and n is a number of entered bundled trades in a data

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processing system using said method of asset trading, and wherein said x are given by a solution of said linear programming problem, each said x_j being an allocation value corresponding to bundle trade number "j", said u_j being a bundle size corresponding to bundle trade number "j", wherein said c_i are preselected constants, and wherein a_{kj} is a portfolio weight corresponding to bundle number "j" associated with portfolio constraint number "k", said plurality of constraints having p number of constraints, and wherein j indexes bundles corresponding to constraint number "k", $j \in T_k$, where T_k is set of bundles associated with constraint number "k", and b_k is a portfolio limit associated with constraint number "k".

23 ~~24~~. The method of claim 2 ~~1~~ wherein said step of matching trades includes a step of optimization.

24 ~~25~~. The method of claim 23 ~~24~~ wherein said step of optimization comprises a step of solving a linear programming problem.

25 ~~26~~. The method of claim 24 ~~25~~ wherein said step of solving a linear programming problem includes a step of extremizing an objective function, said objective

T0660 function being $\sum_{i=1}^{m} c_i \mu_i$, wherein μ_i is a set of m market surpluses defined by

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$-\sum_{j=1}^{n} z_{ij}x_j \quad \forall \quad i \in \{1,...,m\}$, wherein m is a number of assets to be traded and said z_{ij} are said set of proportions of each asset to be traded, a number "j" corresponding to bundle trade number of said plurality of bundle trades, and wherein said x are given by a solution of said linear programming problem, each said x_j being an allocation value corresponding to bundle trade number "j", and each said c_i is preselected constant.

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35. The data processing system of claim 34 wherein said circuitry for matching trades further comprises:

circuitry for selecting a set of numerical values, wherein said set of numerical values has a same number of members as a number of said plurality of entered bundled trades, said set of numerical values forming a set of allocation values; and

circuitry for multiplying each proportion of asset to be traded by a one of each numerical value of said set of numerical values, said step of multiplying being performed for each bundled trade, thereby forming a set of weighted proportions of assets to be traded, said set having a number of weighted proportions equal to a number of said assets to be traded.

~~36.~~ 34 The data processing system of claim ~~35~~ 33 further comprising circuitry for forming a set of transaction allocations, said circuitry for forming a set of transaction allocations further comprising:

for each portfolio constraint associated with a particular market participant, circuitry for forming an allocation limit, said circuitry for forming an allocation limit associated with said particular market participant comprising:

circuitry for multiplying each said portfolio weight by said allocation value corresponding to said associated trade bundle;

circuitry for summing each product formed by said multiplying circuitry; and

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circuitry for dividing said portfolio limit by a sum formed by said summing circuitry;

circuitry for selecting a smallest allocation limit from a set of allocation limits having members including allocation limits corresponding to each market participant in a matched trade;

for each bundle having a nonzero allocation value, circuitry for dividing each bundle size by said nonzero allocation value, thereby forming a set of allocation ratios;

circuitry for finding a smallest allocation ratio of said set of allocation ratios;

circuitry for selecting a smaller value of said smallest allocation ratio and said smallest allocation limit, thereby forming an allocation factor; and

circuitry for multiplying each allocation value of said set of allocation values by said allocation factor, thereby forming a transaction allocation corresponding to each bundled trade of said plurality of bundled trades.

39. The program product operable for storage in a computer readable medium of claim 38 wherein said programming for matching trades further comprises:

programming for selecting a set of numerical values, wherein said set of numerical values has a same number of members as a number of said plurality of entered bundled trades, said set of numerical values forming a set of allocation values; and

programming for multiplying each proportion of asset to be traded by a one of each numerical value of said set of numerical values, said step of multiplying being performed for each bundled trade, thereby forming a set of weighted proportions of assets to be traded, said set having a number of weighted proportions equal to a number of said assets to be traded.

37 ~~40~~. The program product operable for storage in a computer readable medium of claim 36 ~~39~~ further comprising programming for forming a set of transaction allocations, said programming for forming a set of transaction allocations further comprising:

for each portfolio constraint associated with a particular market participant, programming for forming an allocation limit, said programming for forming an allocation limit associated with said particular market participant comprising:

programming for multiplying each said portfolio weight by said allocation value corresponding to said associated trade bundle;

programming for summing each product formed by said multiplying circuitry; and

programming for dividing said portfolio limit by a sum formed by said summing circuitry;

programming for selecting a smallest allocation limit from a set of allocation limits having members including allocation limits corresponding to each market participant in a matched trade;

for each bundle having a nonzero allocation value, programming for dividing each bundle size by said nonzero allocation value, thereby forming a set of allocation ratios;

programming for finding a smallest allocation ratio of said set of allocation ratios;

programming for selecting a smaller value of said smallest allocation ratio and said smallest allocation limit, thereby forming an allocation factor; and

programming for multiplying each allocation value of said set of allocation values by said allocation factor, thereby forming a transaction allocation corresponding to each bundled trade of said plurality of bundled trades.

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performed for each bundled trade, thereby forming a set of weighted proportions of assets to be traded, said set having a number of weighted proportions equal to a number of said assets to be traded.

46 39 ~~43~~. The method of claim 38 ~~42~~ wherein said step of matching trades further comprises a step of forming a set of transaction allocations, said step of forming a set of transaction allocations further comprising the steps of:

for each portfolio constraint associated with a particular market participant, forming an allocation limit, said step of forming an allocation limit associated with said particular market participant comprising the steps of:

multiplying each said portfolio weight by said allocation value corresponding to said associated trade bundle;

summing each product formed by said multiplying step; and

dividing said portfolio limit by a sum formed by said summing step;

selecting a smallest allocation limit from a set of allocation limits having members including allocation limits corresponding to each market participant in a matched trade;

for each bundle having a nonzero allocation value, dividing each bundle size by said nonzero allocation value, thereby forming a set of allocation ratios;

finding a smallest allocation ratio of said set of allocation ratios;

selecting a smaller value of said smallest allocation ratio and said smallest allocation limit, thereby forming an allocation factor; and

multiplying each allocation value of said set of allocation values by said allocation factor, thereby forming a transaction allocation corresponding to each bundled trade of said plurality of bundled trades.

~~44~~ 40. The method of claim ~~43~~ 39 further comprising the steps of:

for each said bundled trade, reducing said bundle size value by a corresponding transaction allocation; and

for each portfolio limit associated with said matched trade, reducing said each portfolio limit by a sum formed by summing a set of products of corresponding portfolio weights multiplied by transaction volumes, said transaction volumes corresponding to bundles associated with said each portfolio limit associated with said matched trade.

~~45~~ 41. The method of claim ~~44~~ 40 further comprising the step of negating each of said weighted proportions of said set of weighted proportions thereby forming a set of market surpluses, each market surplus of said set of market surpluses being a market surplus corresponding to each of said assets to be traded.

~~46~~ 42. The method of claim ~~45~~ 41 further comprising the step of redistributing each market surplus of said set of market surpluses.

~~47~~ 43. The method of claim ~~46~~ 42 wherein the step of redistributing each market surplus of said set of market surpluses further comprises the steps of:

selecting a first set of redistribution values, said first set of redistribution values including a plurality of redistribution values, wherein each value corresponds with an asset to be traded, a number of said values being equal to a number of assets to be traded;

selecting a first set of redistribution values, said first set of redistribution values including a plurality of redistribution values, wherein each value corresponds with an asset to be traded, a number of said values being equal to a number of assets to be traded;

selecting a plurality of second sets of redistribution values, said plurality of second sets having a number of sets equal to a number of entered bundled trades, and wherein each value in each second set corresponds with an asset to be traded, a number of said values being equal to a number of assets to be traded, and wherein a sum of all redistribution values, from said first set and from said plurality of second sets, corresponding with each asset has a value of one;

multiplying each redistribution value in said first set by each market surplus of its corresponding asset, thereby forming a first set of surplus redistribution values;

multiplying each redistribution value in each second set by each market surplus of its corresponding asset, thereby forming a plurality of second sets of surplus redistribution values each said redistribution value corresponding to an

asset to be traded, and each set of said plurality of second sets of surplus redistribution values corresponding with an asset bundle;

multiplying each surplus redistribution value in said first set of surplus redistribution values by said allocation factor, thereby forming a set of first transaction redistributions, said first transaction redistributions being retained by a market maker;

multiplying each surplus redistribution value in each set of said plurality of second sets of redistribution values by said allocation factor, thereby forming a plurality of sets of second transaction redistributions, each of said plurality of sets second transaction redistributions corresponding with an entered bundled trade; and

adding each second surplus redistribution value to its corresponding transaction allocation in its corresponding asset bundle.

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27. A data processing system for trading asset bundles comprising:

circuitry for entering a plurality of bundled trades entering a plurality of bundled trades, each of said plurality of bundled trades comprising:

a plurality of assets to be traded; a

a bundle size value;

a set of proportions of each asset of plurality of assets to be traded in units of said bundle size value; and

one or more portfolio constraints, each of said one or more portfolio constraints including:

a set of portfolio weights; and

a portfolio limit, and wherein each said portfolio constraint is associated with a set of bundled trades and a market participant corresponding to said set of bundled trades; and

circuitry for matching bundled trades among said plurality of bundled trades.

28. The data processing system of claim 27 wherein said circuitry for entering bundled trades includes circuitry for entering trades using distributed processing over a network.

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29. The data processing system of claim 27 wherein said circuitry for matching bundled trades further comprises circuitry for reporting matched trade data using distributed processing over a network.

30. The data processing system of claim 27 wherein said circuitry for entering bundled trades includes circuitry executing an asynchronous thread for entering bundled trades.

31. The data processing system of claim 27 wherein said circuitry for matching bundled trades includes circuitry executing an asynchronous thread for matching bundled trades.

32. The data processing system of claim 27 wherein said circuitry for matching trades further comprises circuitry for allocating an amount of each bundle to be traded among said plurality of bundles.

33. The data processing system of claim 27 wherein each bundled trade includes a bundle size value.

34. The data processing system of claim 27 wherein each bundled trade includes a set of proportions of each asset of said plurality of assets to be traded in units of said bundle size value.

37. A program product operable for storage in a computer readable medium, said program product for bundled trading of assets comprising:

programming for entering a plurality of bundled trades entering a plurality of bundled trades, each of said plurality of bundled trades comprising:

a plurality of assets to be traded;

a bundle size value;

a set of proportions of each asset of plurality of assets to be traded in units of said bundle size value; and

one or more portfolio constraints, each of said one or more portfolio constraints including:

a set of portfolio weights; and

a portfolio limit, and wherein each said portfolio constraint is associated with a set of bundled trades and a market participant corresponding to said set of bundled trades; and

programming for matching bundled trades among said plurality of bundled trades.

38. The program product operable for storage in a computer readable medium of claim 37 wherein each bundled trade includes a set of proportions of each asset of said plurality of assets to be traded in units of said bundle size value.

41. A method of asset trading comprising the steps of:

a method of asset trading comprising the steps of:

entering a bundled trade, said bundled trade comprising:

a plurality of assets to be traded;

a bundle size value;

a set of proportions of each asset of plurality of assets to be traded in units of said bundle size value; and

one or more portfolio constraints, each of said one or more portfolio constraints including:

a set of portfolio weights; and

a portfolio limit, and wherein each said portfolio constraint is associated with a set of bundled trades and a market participant corresponding to said set of bundled trades; and

matching trades among a plurality of bundled trades.

42. The method of claim 41 wherein said step of matching trades further comprises the steps of:

selecting a set of numerical values, wherein said set of numerical values has a same number of members as a number of said plurality of entered bundled trades, said set of numerical values forming a set of allocation values; and

multiplying each proportion of asset to be traded by a one of each numerical value of said set of numerical values, said step of multiplying being